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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/763,624	06/15/2001	Jian Kang Wu	P20714	1381

7055 7590 03/09/2005

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EXAMINER	
COLIN, CARL G	

ART UNIT	PAPER NUMBER
2136	

DATE MAILED: 03/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/763,624	WU ET AL.	
	Examiner	Art Unit	
	Carl Colin	2136	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 November 2004* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 June 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Response to Arguments

1. In response to communications filed on 11/15/2004, applicant has amended claims 1-28. The following claims 1-28 are presented for examination.

2. The amendments to the specification, page 2, filed on 11/15/2004 have been considered and the objection has been withdrawn. The objection to the drawings has been withdrawn with respect to the amended specifications. The 35 USC 112 rejection to claims 8 and 9 has been withdrawn with respect to the amended claims and the 35 USC 101 rejection to claim 28 has been withdrawn as well.

3. Applicant's arguments, pages 8-13, filed on 11/15/2004, with respect to the rejection of claims 1-28 have been fully considered, but they are not persuasive. Applicant argues that the reference does not teach storing biometric data in associative memory. For example in column 12, Soutar discloses a preferred method of securely linking and saving biometric data (column 10, lines 12-20), the id code for example may be stored in secure location outside the protected filter... this will improve the system security trying to retrieve the key (column 12, lines 65 through column 13, line 17). H(u) may also be stored as array of elements. See also column 13 where it's disclosed minutia points and c(x) pattern stored and retrieved as a linked system (column 13, lines 33-51). Examiner asserts that Soutar discloses storing bit pattern in associative memory with respect to at least the citation above. Therefore claim 1 is disclosed as claimed and

remains rejected. Claims 22, 23 and 28 that recite the use of associative memory also remain rejected in view of the above. Regarding claims 10, 11, and 16, in response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). The rejection of the dependent claims not challenged by applicant still applies in this office action.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the

reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4.1 **Claims 1-8, 12-15, 17-28** are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent 6,219,794 to **Soutar et al.**.

4.2 **As per claims 1, 18, and 23-25, Soutar et al.** discloses a method and apparatus of generating a key or set of keys from a person's biometrics data the method comprising: (1) capturing the person's biometric data, for example (see column 15, lines 20-41 and column 18, line 66 through column 19, line 13); (2) normalizing the captured biometrics data, for example (see column 15, lines 20-41; see also column 19, lines 1-42); (3) extracting invariant feature measures from the normalized data and representing the feature measures as a bit pattern, for example (see column 15, lines 20-62; see also column 19, lines 1-42); (4) storing the bit pattern in associative memory in an enrolment / registration phase and recalling the stored bit pattern from the associative memory in an identification / verification phase, for example (see column 16, lines 12-42; column 19, lines 32-42); and (5) generating the key from the recalled bit pattern, for example (see column 16, lines 23-65 and column 19, lines 44-57). Soutar discloses a preferred method of securely linking and saving biometric data (column 10, lines 12-20), the id code for example may be stored in secure location outside the protected filter... this will improve the system security trying to retrieve the key (column 12, lines 65 through column 13, line 17). H(u) may also be stored as array of elements. See also column 13 where it's disclosed minutia points and c(x) pattern stored and retrieved as a linked system (column 13, lines 33-51).

As per claim 22, Soutar et al. discloses a method of controlling access by generation of an access key from a person's biometrics data comprising the steps of: (1) capturing the person's biometrics data, for example (see column 15, lines 20-41 and column 18, line 66 through column 19, line 13); (2) normalizing the captured biometrics data, for example (see column 15, lines 20-41; see also column 19, lines 1-42); (3) extracting invariant feature measures from the normalized data and representing the feature measures as an initial bit pattern, for example (see column 15, lines 20-62; see also column 19, lines 1-42); (4) storing the initial bit pattern in associative memory for retrieval, for example (see column 15, line 20 through column 16, line 20 see also column 19, lines 32-42); (5) repeating steps (1)-(3) at a subsequent time to generate a subsequent bit pattern, for example (see column 14, lines 20-56); (6) inputting the subsequent bit pattern to the associative memory to recall the stored bit pattern, for example (see column 14, lines 20-56); and (7) generating the key from the recalled bit pattern, for example (see column 14, lines 20-56).

As per claim 2, Soutar et al. discloses the limitation of wherein the normalization step includes the step of selecting reference points of the captured biometrics data and normalizing the data with respect to the reference points, for example (see column 13, lines 18-51).

As per claim 3, Soutar et al. discloses the limitation of wherein the biometrics data comprises a face image and the reference points comprise the location of the eye portions of the

face image, for example (see column 18, line 66 through column 19, line 13). See also the cited article for more details.

As per claim 4, Soutar et al. discloses the limitation of wherein the biometrics data comprises a fingerprint image and the reference points comprise the location and orientation of the core of the fingerprint image, for example (see column 15, lines 20-62).

As per claims 5 and 19, Soutar et al. discloses the limitation of wherein the biometrics data comprises an image and the features are selected from normalized data corresponding to a portion of the image, for example (see column 16, lines 10-18 and lines 50-65).

As per claims 6 and 20, Soutar et al. discloses the limitation of wherein the bit pattern is generated from the features using a representation scheme, for example (see column 15, lines 20-62).

As per claims 7 and 21, Soutar et al. discloses the limitation of wherein the features are represented according to importance, for example (see column 17, lines 1-25).

As per claim 8, Soutar et al. discloses the limitation of wherein biometrics data comprises a fingerprint image and the feature measures are of minutiae points, for example (see column 15, lines 20-62).

As per claim 12, Soutar et al. discloses the limitation of wherein, in step (5), a symmetry key or public/private key pair is generated, for example (see column 3, lines 35-47).

As per claim 13, Soutar et al. discloses the limitation of further comprising the step of performing encryption or decryption using the key when inputting or outputting data, for example (see column 12, lines 34-55).

As per claim 14, Soutar et al. discloses the limitation of wherein steps (1)-(4) are applied to a plurality of biometrics data sources, the key being generated from a respective plurality of retrieved bit patterns, for example (see column 15, lines 20-41).

As per claim 15, Soutar et al. discloses the limitation of wherein the biometrics data sources are of different types, for example (see column 20, lines 49-52).

As per claim 17, Soutar et al. discloses the limitation of wherein step (1) is performed a plurality of times to provide a plurality of samples and only invariant feature measures persistent in all samples are used to generate the key, for example (see column 15, lines 20-41). **Soutar et al.** discloses how the key is generated in columns 15-16.

As per claims 26-27, Soutar et al. discloses the limitation of an apparatus including a biometrics capturing device being a digital processor programmed to perform the method, for

example (see column 20, lines 40-58), wherein the device captures live biometrics data, for example (see column 1, lines 37-41).

As per claim 28, Soutar et al. discloses a codebook to store data from which, upon retrieval, a key is generated, the codebook comprising distributed associative memory, for example (see column 2, line 28 through column 3, line 20).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.1 **Claims 10, 11, and 16** are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,219,794 to **Soutar et al.** in view of US Patent 5,987,153 to **Chan et al.**.

5.2 **As per claims 10-11, and 16, Soutar et al.** substantially teaches storing image data using linked list or associative memory for storing data. **Soutar et al.** further discloses co-alignment

to verify the matching between a new fingerprint to a stored one in column 18. **Soutar et al.** does not explicitly specify wherein the association memory is implemented using a Hopfield neural network, which is notoriously well known in the art of image processing. **Chan et al.** in an analogous art teaches a method of using plurality of persons storing biometric data in a database in memory and storing data using different data structures including associative memory implementing in a Hopfield neural network to determine whether current test features are too close to the prior test features, for example (see column 3, lines 20-30 and column 5, lines 1-5 and 30-47). The use of neural network to decode fuzzy problems like face recognition as well known in the art.Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of **Soutar et al.** to provide an associated memory implemented in a Hopfield neural network as taught by **Chan et al.**. This modification would have been obvious because one skilled in the art would have been motivated by the suggestions provided by **Chan et al.** so as to provide an efficient way of verifying test features using an acceptable distance measure for the features (column 4, lines 60-67).

6. **Claim 9** is rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,219,794 to **Soutar et al.** in view of US Patent 5,715,325 to **Bang et al.**.

6.1 **As per claim 9, Soutar et al.** substantially discloses biometric data comprises a face image. **Soutar et al.** does not explicitly disclose the feature measures are of corners of the image. **Bang et al.** in an analogous art teaches a method of analyzing a face image using corners as feature measures with a rapid identification regardless of other color related variables and

reliably operational in real life where there are continuous changes in illumination, for example (see column 1, lines 65 through column 2, line 8 and column 2, lines 10-46). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of **Soutar et al.** to provide a face image and the feature measures are of corners of the image as taught by **Bang et al.**. This modification would have been obvious because one skilled in the art would have been motivated by the suggestions provided by **Bang et al.** so as to provide a rapid identification regardless of other color related variables and reliably operational in real life where there are continuous changes in illumination, for example (see column 1, lines 65 through column 2, line 8).

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7.1 Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carl Colin whose telephone number is 571-272-3862. The examiner can normally be reached on Monday through Thursday, 8:00-6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on 571-272-3795. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Carl Colin

Patent Examiner

March 5, 2005

AYAZ SHEIKH
SUPERVISORY PATENT EXAMINER
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